REMARKS/ARGUMENTS

These remarks are made in response to the Office Action of December 18, 2008 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due. However, the Examiner is expressly authorized to charge any deficiencies to Deposit Account No. 14-1437.

Claim Rejections – 35 USC § 101

Claims 17-20 were rejected under 35 U.S.C. §101 because it was asserted that the claimed invention is directed to non-statutory subject matter. During patent examination, the pending claims must be "given their broadest reasonable interpretation *consistent with the specification*."[1] The *broadest* reasonable interpretation of the claims must also be consistent with the interpretation that one skilled in the art would reach.[2]

Applicants note that Claims 17-20 are clearly directed to a computer-implemented process which is one of the enumerated subject matter categories. It is also noted that the Federal Circuit[3] concluded that the "useful, concrete and tangible result" inquiry is inadequate and reaffirmed that the machine-or-transformation test outlined by the Supreme Court is the proper test to apply.

According to In re Bilski, the applicable test to determine whether a claim is drawn to a patent-eligible process under § 101 is whether: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.[4] It is important to note that the machine-or-transformation test is not *a physicality test* – i.e., a claim can still be patentable even if it does not recite sufficient physical steps.

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[1] In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).
[2] In re Cortright, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999).
[3] In re Bilski, __ F.3d __ (Fed. Cir. 2008).
[4] In re Bilski, __ F.3d __ (Fed. Cir. 2008).

The applicable test to determine whether a claim is drawn to a patent-eligible process under § 101 is the machine-or-transformation test set forth by the Supreme Court and clarified herein, and Applicants' claim plainly passes that test.

The present invention is tied to a particular *computer-implemented process used in a computer*, mainly a method for performing morphological analysis on a text string in natural language processing in a computer system. The present invention receives text string to be processed and *transforms* the text string by decomposing the text string that results in an optimum token string being stored in a complex word dictionary.

Applicants, therefore, respectfully solicit withdrawal of the imposed rejection of claims 17-20 under 35 U.S.C. § 101.

Claim Rejections – 35 USC § 103

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,873,634 to Frisch, *et al.* (hereinafter Frisch) in view of U.S. Patent 5,754,972 to Baker, *et al.* (hereinafter Baker). Applicants have amended claim 17 to clarify the features of the invention. Additionally, Applicants have added new claims 21-24. No new matter has been added.

Aspects of Applicants' Invention

It may be helpful to reiterate certain aspects of Applicants' invention prior to addressing the cited references. One embodiment of the invention, as typified by amended Claim 17, is a method of performing a morphological analysis on a text string of an agglutinative language by using a computer.

The method can include selecting whether or not to decompose a decomposable complex word in response to a request from an application making use of a result of the morphological analysis (see, e.g., Specification, paragraphs [0044] and [0055]); inputting

the text string to be processed, wherein the text string is in *an agglutinative language* and comprises *more than one compound word*, wherein each compound word comprises a linguistic unit having a semantic meaning; and decomposing the text string into tokens. When it is selected not to decompose a decomposable complex word, the method can further include determining whether each token is decomposable; if the token is not decomposable, registering the token on a token list; and selecting the optimum token string based on the token list. (See, e.g., Specification, paragraphs [0055] to [0064]; see also Fig. 6).

The present invention retrieves all of the possible word candidates from the dictionary, and selects the optimum token strings for compound words to resolve ambiguity. Some applications of morphological analysis, like search engines, require both the compound word form and its decompounded word pieces to build precise index for documents. Some other applications only need the compound word form, and do not care about the decompounded pieces. Therefore, the present invention introduces a configuration command to correspond to each of them, and decomposes words within a morphological analysis step. Together with grammatical information to select optimum pieces, the present invention can achieve both flexibility and high speed processing for both types of applications. See, e.g., Specification, paragraph [0044].

The Claims Define Over The Prior Art

In responding to Applicants' previous arguments, the Examiner indicated that the features upon which Applicants' based their previous arguments are not recited in the rejected claims. The Examiner noted that the features/limitations from Applicants' specification cannot be read into the claims based on In re Van Geuns. The Applicants' have amended claim 17 to incorporate these features noted by the Examiner into independent claim 17.

Currently amended independent claim 17 recites "inputting the text string to be processed, wherein the text string is in *an agglutinative language* and comprises *more than one compound word*, wherein each compound word comprises a linguistic unit having a semantic meaning." In an agglutinative language, most words are formed by joining morphemes together. A morpheme is a linguistic unit/word that has semantic meaning. The concept morpheme differs from the common concept of a word, as many morphemes cannot stand as words on their own. Japanese and other languages such as Korean, Basque, Indonesian, Hungarian and Finnish are considered agglutinative languages.

Frisch's teachings apply to different species of languages, such as German (and some other European) languages, as an inputted string. A German compound word only contains a trivial number of attributes: (1) stand-alone, (2) a front component, (3) a middle component, (4) a back component) that appear within only single noun words. (Frisch, col. 4, lines 11-12). In an agglutinative language, such as Japanese and other languages, there are a significant number of attributes (approximately one hundred attributes) to represent grammatical features of words in a sentence, since most words are formed by joining many morphemes together, and they are allowed to agglutinate in flexible order sequence within a sentence. Agglutinative compound words do not appear stand-alone in a sentence; rather they are agglutinated with preceding and following words (e.g. adjective, verb, particle, and so on). Therefore the ambiguity and the complexity of analyzing and processing the number of candidate sequences become much higher that what Frisch teaches.

Frisch simply examines all of the candidates one by one:

> "Since the process is recursive and requires constant access to the dictionary, the computer time required to decompound a word depends on the degree of the branching of the compound word. The degree of branching is proportional to the length of the compound word and to the length of the components in the dictionary."

(See col. 4, lines 61-67). Thus, it would be practically impossible and time consuming to compute a result in Frisch if the string becomes too complex as in agglutinative sentences. In agglutinative 'words' (sentences/morphemes), it is necessary to compute the whole sentence to decompose a word. The agglutinative word is much longer than the single compound words of Frisch. Frisch's invention is only effective for processing short character sequences, such as single compound words of German and others.

Frisch lacks disclosure of morphological analysis for an agglutinative language and calculating the optimal token sequences including compound words from the inputted agglutinated sentence. Thus, Frisch's teaching is not applicable for agglutinative languages, since the present invention is above and beyond the metes and bounds of Frisch.

The other cited references do not make up for the deficiencies of Frisch as discussed above. Accordingly, the cited references, alone or in combination, fail to disclose or suggest each and every element of Claim 1, as amended. Applicants therefore respectfully submit that amended Claim 1 defines over the prior art. Furthermore, as each of the remaining claims depends from Claim 1 while reciting additional features, Applicants further respectfully submit that the remaining claims likewise define over the prior art.

Applicants thus respectfully request that the claim rejections under 35 U.S.C. §103 be withdrawn.

CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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